

REMARKS

Favorable reconsideration of the application is respectfully requested in light of the amendments and remarks herein.

Claims 1-9 were pending in this application. By the present Amendment, Claims 1, 3-5 and 7-8 are amended and Claims 10-11 are added. In addition, the specification has been amended to correct obvious typographical and grammatical errors. Further, a proposed drawing change accompanies this Amendment to correct an obvious error to FIG. 1.

At paragraph 1 of the Office Action, Claim 9 was objected to because it was believed the term "said control means" did not have antecedent support. However, the term was referring to the "control means" that is part of the control device, as set forth in the last paragraph of Claim 5. Thus, the Examiner's objection appears to have been an oversight.

Claims 1-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,331,848 ("Stove") in view of U.S. Patent No. 6,272,644 ("Urade"); and Claim 9 was rejected under §103(a) in further view of U.S. Patent No. 5,682,181 ("Nguyen"). Applicant respectfully submits that all claims in this application, at least in the form presented herein, are patentable over the cited references for at least the following reasons:

Beginning with Claim 1, it is contended that any proper combination of Stove and Urade would not result in a projection display apparatus connected to a control device as a host through a serial interface, in which data is transmitted/received bi-directionally to display a picture on a display screen, the apparatus comprising:

display means for receiving display data from said control device and projecting a picture represented by said display data onto said display screen;

input/output means connected to the control device and adapted for generating display control signals controlling said display means, said input/output means being further connectable to at least one external peripheral equipment to

input/output data pertaining to supplementary information appended to input data;
and

display control means for controlling a picture projected by said display means
based on a display control signal input through said input/output means.”
(emphasis added)

It is believed that the Examiner has misconstrued the language of Applicant’s claims. In particular, Claim 1 claims a projection display apparatus connected to a control device (e.g., the latter may be a computer) where the projection display apparatus comprises the claimed display means, input/output means and display control means. By contrast, in the Examiner’s application of the Stove patent, the Examiner has cited features of the presentation computer 1 and interaction computer 7 as having features which are specifically claimed to be a part of a projection display apparatus connected to a control device as a host, such as a computer similar to Stove’s presentation computer 1. That is, the Examiner’s claim construction is incorrect: the Applicant’s claims *cannot* be construed to mean that the host control device comprises the claimed display means, input/output means and display control means.

In the Stove patent, a projector 3 is shown connected to the presentation computer 1. The projector 3, however, has not been relied upon for containing the claimed display means, input/output means or display control means. In any event, Applicant contends that the projector 3 does not include at least the claimed input/output means connected to the control device and adapted for generating display control signals, and which is further connectable to at least one external peripheral equipment to input/output data pertaining to supplementary information appended to input data. As seen in Stove’s FIG. 1, for example, the projector 3 is connected only to the presentation computer 16, and there is no disclosure in the Stove patent which indicates any connection capability to an external peripheral equipment for any purpose.

It is further noted that the Examiner has relied upon Stove's pointing device laser pointer 8 as being equivalent to the Applicant's claimed display control means. However, Applicant's claim 1 specifically claims a projection display apparatus that includes the display control means. The laser pointer 8 is an apparatus *separate and distinct* from Stove's projector 3, and thus cannot be considered part of the projector 3. Thus, the Office Action has misconstrued this aspect of the Applicant's claims as well. For the Examiner's convenience, an example of a display control means is exemplified by the display controller 19 in Applicant's FIG. 4, which is disposed within the projector 2 (also shown in FIG. 1).

Thus, even if features in the Urade patent were to be incorporated into the Stove system as the Examiner proposes, which the Examiner appears to contend would result in a USB cable between the presentation computer and the projector 3, Applicant's claimed invention would not result since the projector 3 would still lack the claimed input/output means connectable to at least one external peripheral equipment. As such, the proposed combination cannot render Applicant's claims obvious on this basis alone.

Accordingly, in light of the above distinctions, Claim 1, at least in the form amended herein, is not unpatentable under §103 over the Stove and Urade patents.

Independent Claim 5 is not rendered obvious by Stove and Urade under §103 for analogous reasons.

The remaining claims in this application are patentable based at least upon their dependencies from Claims 1 or 5.

Claims 2 and 6

In addition, merely by way of example, Claims 2 and 6 each claim that the input/output means of the projection display apparatus, which is connected to the control device, is a hub

conforming to the USB (Universal Serial Bus) standard and the hub is connected to the control device (as a host) having an interface conforming to the USB standard and to an external peripheral equipment having an interface conforming to the USB standard. In the Office Action, the Examiner relied upon the Urade patent for teaching a hub, and stated it would be obvious to couple the hub to the presentation computer 16 of Stove. However, as just explained, Applicant's hub is claimed as part of the projection display apparatus, not the host control device to which the projection display apparatus is connected. Accordingly, Claims 2 and 6 are further distinguishable from the cited references.

Claims 3 and 7

Further, Claims 3 and 7 each recite that an operating input device for generating an operating input signal as an external peripheral equipment is connected to the input/output means, and that the display control means controls a picture projected by the display means in accordance with a pointer control signal from the control device based on the operating input signal generated in the operating input device. To this end, the Office Action referred to the possible use of the keyboard of Urade with the presentation computer in Stove. However, as explained above, Applicant's input/output means is claimed to be part of the projection display apparatus, not the host control device to which the projection display apparatus is connected. In Stove's system, there is no disclosure pertaining to an operating input device connected to the projector 3. Thus, the proposed combination of Urade and Stove would not result in the features recited in Applicant's Claims 3 and 7.

Claims 4 and 8

Moreover, Claims 4 and 8 each recite that a second projection display apparatus is connected as an external peripheral device to the input/output means of the first projection

display apparatus and wherein the input/output means outputs display data and display control signals to the second projection display apparatus. To reiterate, the input/output means is claimed to be a part of the (first) projection display apparatus, not part of the host computer. Obviously, there is no disclosure in the Stove patent pertaining to the use of a second projector connected to the projector 3 disclosed therein. Accordingly, Claims 4 and 8 are further distinguishable from the cited references.

Claims 10 and 11

New Claims 10 and 11 each claim that the projection display apparatus further includes receiving means for receiving a remote control signal from a remote control device and providing a detection signal in response thereto, wherein the display control means outputs a pointer control signal to the display means to shift a pointer included in the picture projected by the display means responsive to the detection signal from the receiving means. In the Stove system, there is no disclosure of the projector 3 receiving a remote control signal from the laser pointer and shifting a pointer responsive thereto. Only the presentation computer 16 interacts with the laser pointer. As such, the system in Stove does not exhibit the advantages of the apparatus and system of Applicant's Claims 10 and 11, such as enhanced flexibility in the possible placement of the projection display apparatus relative to the host computer.

Conclusion

In view of the foregoing, entry of this Amendment, and the allowance of this application with Claims 1-11 are respectfully solicited.

The above statements concerning the disclosures in the cited references represent the present opinion of Applicant's representative and, in the event that the Examiner disagrees,

Applicant's representative respectfully requests the Examiner specifically indicate those portions of the references providing the basis for a contrary view.

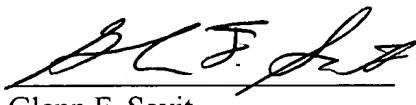
It is submitted that the claims in this application, as originally presented, are patentably distinct over the prior art cited by the examiner, and that these claims were in full compliance with the requirements of 35 U.S.C. 112. Changes to these claims, as presented herein, are not made for the purpose of patentability within the meaning of 35 U.S.C. §§101, 102, 103 or 112. Rather, these changes are made for clarification and to round out the scope of protection for the invention.

Attached hereto is a marked-up version of the changes made to the claims and specification by the current amendment. The attached page is captioned "Version With Markings to Show Changes Made."

In the event that additional cooperation in this case may be helpful to complete its prosecution, the Examiner is cordially invited to contact Applicant's representative at the telephone number written below.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The first full paragraph on page 8 has been amended as follows:

--The projector 2 includes therein an optical system and so forth and, based on display data supplied from the control device 3 over the RGB cable 6, projects light onto the display screen [5] S to display an image [on the display screen] thereon.--

The third full paragraph on page 9 has been amended as follows:

--The above-described projector 2 and control device 3 are interconnected as shown in Fig. [3] 2. That is, the projector 2 is provided with a hub 11 having an upstream port 21 and a downstream port 22 conforming to the USB standard. The control device 3 is provided with a downstream port 31 connected to the USB cable 5. The USB device includes at least an upstream port.--

The paragraph bridging pages 9 and 10 has been amended as follows:

--In this projection display system 1, the control device 3 controls the protocol as a host to control the projector 2 and the USB device connected to the projector, as targets. At this time, bi-directional communication is executed between the control device 3, projector 2 and the USB device in the form of packets including additional information such as addresses of the destination of data transmission or data [sorts] types.--

The first full paragraph on page 10 has been amended as follows:

--That is, in transferring display data between the projector 2 and the USB device, the control device 3 first generates and transmits a token packet including addresses of a data receiving side. Next, the control device 3 transmits a data packet and, after the data packet has arrived at the data receiver, it transmits a handshaking packet. If the data receiving side has received the data packet as normally, it transmits a packet including an ACK to the control device 3. If conversely the data receiving side has failed to [receivethe] receive the data packet, it transmits a packet including a NAK to the control device 3. The control device 3 performs isochronous transfer, interrupt transfer, control transfer or bulk transfer, depending on the type of data, such as display data transmitted to the projector 2 or the USB device, or on the projector control signals.--

The last full paragraph on page 11 has been amended as follows:

--The controller 33 performs processing in accordance with the general-purpose OS (operating system) such as, for example, Microsoft Windows (registered trademark). This controller 33 controls the USB device connected to the projector 2 and the USB device connected [ot he] to the projector 2.--

The paragraph bridging pages 11 and 12 has been amended as follows:

--When performing control in accordance with an operating input signal from the operating input unit 34 or the USB mouse signals, the controller 33 reads in the projector control program to generate projector control signals and pointer control signals. When executing control of the USB device connected to the projector 2, the controller 33 executes a control program in keeping with the USB device connected to [he] the projector 2.--

The third full paragraph on page 13 has been amended as follows:

--The series B connector 12 is connected to the series A connector 32 of the control device 3 over the USB cable 5, while being connected to the hub 11. The series B connector 12 is fed with the projector control signal and the pointer control signal from the control device 3 to output the signals to the hub 11. The series B connector 12 also outputs a packet input from the hub 11 to output the packet [overt] over the USB cable 5 to the control device 3.--

The second full paragraph on page 14 has been amended as follows:

--The hub controller 23 is connected to the upstream port 21 and to the downstream port 22. The hub controller 23 references to a PID, indicating the type of the packet appended to the packet from the upstream port 21, to output the packet to one of the downstream ports 22a and 22b. The hub controller 23 also references to a packet from each downstream port 22 to output the packet to [an other] another downstream port 22 or to the upstream port 21.--

The third full paragraph on page 15 has been amended as follows:

--The USB mouse processor 16 is connected to the signal conversion processor 15 and to the downstream port 22b. This USB mouse processor 16 converts the data from the signal conversion processor 15 into USB mouse signals issued when the mouse [pursuantto] pursuant to the USB is actuated. The USB mouse processor 16 generates a packet including [covered] converted USB mouse signals to output the resulting packet to the hub 11.--

The first full paragraph on page 16 has been amended as follows:

--The display controller 19 is connected to the USB projector processor 17, projection display unit 18 and to the IR light receiver 14. The display controller 19 controls the contents demonstrated on the projection display unit 18, while generating a projector control signal, representing the state of the projector 2 and so forth, to output the [so]thus-generated control signal to the USB projector processor 17.--

The paragraph bridging pages 17 and 18 has been amended as follows::

--If, in the above-described projection display system 1, the control device 3 and the projector 2 are interconnected, the control device 3 recognizes the projector 2 as three USB devices, namely the hub 11 and the USB mouse function and the USB projector function, both connected to the hub 11. The controller 33 of the control device 3 retrieves the connected projector 2 by executing the projector control program. The USB projector processor 17 of the projector 2 is responsive thereto to acquire from the display controller 19 the information including the projector type name of the projector 2, serial number thereof, and the function thereof that can be set, generates a packet including this information and transmits the [so]thus-generated packet to the control device 3. [So]Hence, the controller 33 recognizes the projector 2 to be controlled by the projection display unit 18. On the other hand, the projector 2 generates, in the display controller 19, the information such as the status or the picture quality adjustment function in displaying the picture on the projection display unit 18, and causes this information to be included in the USB projector processor 17 in the packet to transmit the resulting packet to the control device 3.--

The first full paragraph on page 18 has been amended as follows:

--When a picture is to be [demonstrated] shown on the display screen S in the projection display system 1, the controller 33 of the control device 3 executes the projector control program, responsive to the actuating input signal from the operating input unit 34, or to the USB mouse signal to cause a projector control picture, such as [is] that shown in Fig. 5, to be demonstrated on the display unit 35. On the other hand, the controller 33 causes the projector control picture to be demonstrated on the display unit 35, while transmitting a projector control signal testifying to the demonstration of the projector control picture and display data representing a projector control picture to the projector 2 for demonstrating the projector control picture on the display screen [5] S.--

The first full paragraph on page 19 has been amended as follows:

--The controller 33 demonstrates, as the operation control picture, power source button display units 61a, 61b, for turning the power source of the projector on or off, function button displays 62, 63 for switching the application programs for generating the display data, an input changeover button 64 for switching the type of the display data input from the control device 3 to the projector 2, picture on/off button displays 65a, 65b for start/stop of picture display, acoustic on/off button displays 66a, 66b for start/stop of acoustic output, an APA button display 67, a projector selection display (Model Select) 68 for representing the name of the device, [th] the picture quality [for whjich] which is to be adjusted, a bucket transmission/reception display (Send, Receive) 69 indicating that a packet is to be transmitted/received between the [projectr] projector 2 and the control device 3, and a screen end display (close) 70.--

The paragraph bridging pages 19 and 20 has been amended as follows:

--The controller 33 is responsive to the inputting of the USB[b] mouse signal, testifying [toie] to the selection of the [various] various button displays 61 to 70 demonstrated on the display unit 35, as a result of actuation of the [pointign] pointing device provided in the operating input unit 34, to transmit projector control signals for controlling the projector 2 or the display data for demonstrating the picture on the display screen S to the projector 2 over the USB cable 5 or the RGB cable 6.--

The first full paragraph on page 20 has been amended as follows:

--The controller 33 is also responsive to the inputting from the projector 2 of a packet [includyding] including the USB mouse signal testifying to selection of the button displays 61 to 70 demonstrated on the display screen S as a result of actuation of the remote controller 4, to generate a projector control signal adapted for controlling the projector 2 to transmit the generated control signal through the series A connector 32 to the projector 2 [ot] to output display data for demonstrating a picture on the display screen S over the RGB cable 6.--

The second full paragraph on page 22 has been amended as follows:

--The controller 33 generates a packet including a projector control signal for adjusting the picture quality of the picture demonstrated on the display screen S, responsive to the inputting from the projector of the operating input signal or the USB mouse signal stating that the operating input unit 34 or the remote controller 4 has been operated and selected the displayed representations 71 to 85. The controller 33 sends the packet so generated to the projector 2 through the series A connector 32.[68.]--

The third full paragraph on page 22 has been amended as follows:

--If [an other] another projector is connected to [these13] port 13 of the projector 2, that is if two projectors are connected to the controller 33, the controller 33 demonstrates picture quality setting pictures 90, 91 shown in Fig. 7. The controller 33 is then responsive to whether or not the picture quality setting display is possible, depending on the setting state of each projector and settable items to display a picture quality setting screen.--

The paragraph bridging pages 22 and 23 has been amended as follows:

--That is, the controller 33 acquires the information including the projector type name, serial number, [an] and settable functions, from the display controller 19 to set the projector selection display 81 of the picture quality setting picture 90 as VPL-PX30 (S/N: 9999999), while setting the projector selection display 81 of the picture quality setting picture 91 as VPL-CS1 (S/N: 0000122).--

The second full paragraph on page 24 has been amended as follows:

--If fed with the operating input signal or the USB [mose] mouse signal, stating that a picture is to be demonstrated based on display data prepared in accordance with the registered application program, the controller 33 sends the display data prepared in accordance with the registered application program through the RGB cable 6 to the projector 2.--

The third full paragraph on page 25 has been amended as follows:

--With the present projection display system 1, the system can be constructed using the universal hub 11 and USB cable 5, thus reducing the cost [invlved] involved in software and hardware.--

The first full paragraph on page 26 has been amended as follows:

--Since only one USB series A connector is loaded on the portable personal computer, with the projection display system 1, [an other] another USB device cannot be connected if the projector is already connected. However, since the projector 2 is provided with the hub 11, the other USB device can be connected to the projector 2 to provide for facilitated system extension.--

IN THE CLAIMS:

Claims 1, 3-5 and 7-8 have been amended as follows:

--1. (Amended) A projection display apparatus connected to a control device as a host through a serial interface, in which data is transmitted/received bi-directionally to display a picture on a display screen, said apparatus comprising:

display means for receiving display data from said control device and projecting a picture represented by said display data onto said display screen[being fed from said control device with display data and for being illuminated with projected light to display a picture represented by said display data];

input/output means connected to the control device and adapted for generating display control signals controlling said display means, said input/output means being further connectable [and] to at least one external peripheral equipment to input/output data [based on the] pertaining to supplementary information appended to input data; and

display control means for controlling a picture [demonstrated] projected by said display means based on a display control signal input through said input/output means.--

--3. (Amended) The projection display apparatus according to claim 1 wherein an operating input device for generating an operating input signal as an external peripheral equipment is connected to said input/output means and wherein said display control means controls a picture [demonstrated on] projected by said display means in accordance with a pointer control signal from the control device based on the operating input signal generated in said operating input device.--

--4. (Amended) The projection display apparatus according to claim 1 wherein a [display device] second projection display apparatus is connected as an external peripheral device to said input/output means and wherein said input/output means outputs display data and display control signals to said [display device]second projection display apparatus.--

--5. (Amended) A projection display system in which a control device as a host and a projection display apparatus as a target controlled by said control device are interconnected over a serial interface, and in which data transmission/reception is made bi-directionally at least between said control device and said projection display apparatus to [demonstrate] project a picture by said projection display apparatus on a display screen, wherein
said projection display apparatus includes display means for receiving display data from said control device and projecting a picture represented by said display data onto said display screen[being fed from said control device with display data and for being illuminated with

projected light to display a picture represented by said display data], input/output means connected to the control device adapted for generating display control signals controlling said display means, said input/output means being further connectable [and] to at least one external peripheral equipment to input/output data [based on the] pertaining to supplementary information appended to input data, and display control means for controlling a picture [demonstrated] projected by said display means based on a display control signal input through said input/output means, and wherein

 said control device includes input/output means connected to the projection display apparatus and control means for outputting display control signals and display data to the projection display apparatus and to said external peripheral equipment connected to said projection display apparatus to cause the projection display apparatus to [demonstrate] project a picture on the [projection] display screen[apparatus].--

--7. (Amended) The projection display system according to claim 5 wherein there is provided an operating input device connected as an external peripheral device to said input/output means of said projection display apparatus to generate an operating input signal, and wherein said display control means controls a picture [demonstrated on] projected by said display means on said display screen, in accordance with a pointer control signal from said control device which is based on the operating input signal generated in said operating input device.--

--8. (Amended) The projection display system according to claim 5 wherein said projection display apparatus is a first projection display apparatus, and [there is provided a

display device] a second projection display apparatus is connected as an external peripheral device to said input/output means of said first projection display apparatus and wherein the input/output means of said first projection display apparatus outputs display data and the display control signal from the control device to said [display device]second projection display apparatus.--